

Total Maximum Daily Load (TMDL) Implementation Plan Development Final Public Meeting



Gwynns Island, Milford Haven and Piankatank Watersheds
Mathews, Middlesex and Gloucester Counties

May Louise Sligh

VA Dept. of Conservation and Recreation
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Acknowledgements

Steering Committee Members

Working Group Members

Tidewater Soil and Water Conservation District

Mathews, Middlesex, Gloucester County Governments

VA Department of Conservation and Recreation

VA Department of Environmental Quality

VA Department of Health –Division of Shellfish Sanitation &Environmental Health

VA Division of Game and Inland Fisheries

Middle Peninsula Planning District Commission Commission

Natural Resource Conservation Service

Virginia Institute of Marine Science

Chesapeake Bay Foundation

The Nature Conservancy

Local citizens, community groups and stakeholders in the Gwynns Island, Milford

Haven and Piankatank River watersheds

Thanks for all of your help!

What is a TMDL ?

Total Maximum Daily Load

$$\text{TMDL} = \text{Sum of WLA} + \text{Sum of LA} + \text{MOS}$$

Where:

TMDL	=	Total Maximum Daily Load
WLA	=	Waste Load Allocation (point sources)
LA	=	Load Allocation (nonpoint sources)
MOS	=	Margin of Safety

A TMDL is the maximum amount of a pollutant a water body can receive and still meet water quality standards. TMDLs are required for water bodies that are determined to be impaired due to exceedance of water quality standards

What is a TMDL Implementation Plan?

- TMDL study tells us what we need to do, TMDL implementation plan tells us **how**
- Outlines **actions** that can be taken to meet TMDL allocations
- Serves as a **guide** for implementation efforts

This process offers both economic and water quality benefits



Photo courtesy of Amanda Schwab

Implementation Plan Sections

- Review of TMDL document
- Public Participation
- Implementation Actions
- Measurable Goals & Milestones
- Stakeholder Roles & Responsibilities
- Integration with Other Watershed Plans
- Potential Funding Sources



Review of TMDL Development

- Impairment Description
- Watershed Characteristics
- Water Quality Monitoring
- Water Quality Modeling
- Potential Sources
- Allocations Specified

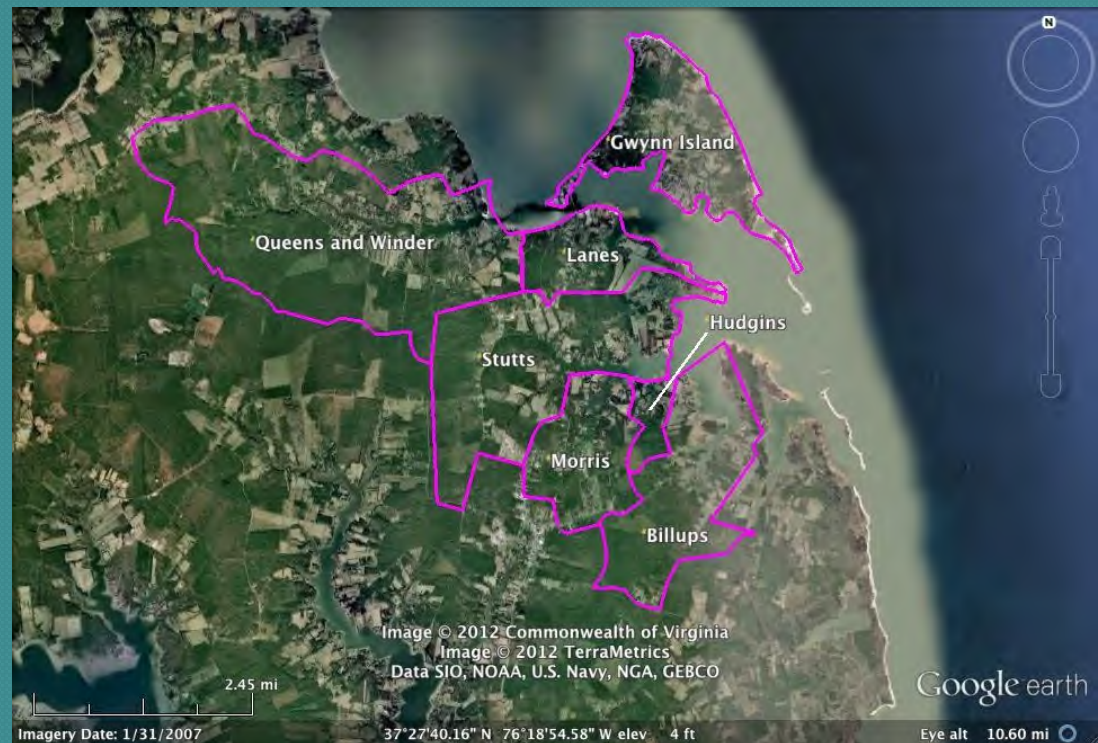


IP

Area Description

TMDLs Developed:

- Queens Creek
- Stutts Creek
- Morris Creek
- Billups Creek
- Edwards Creek



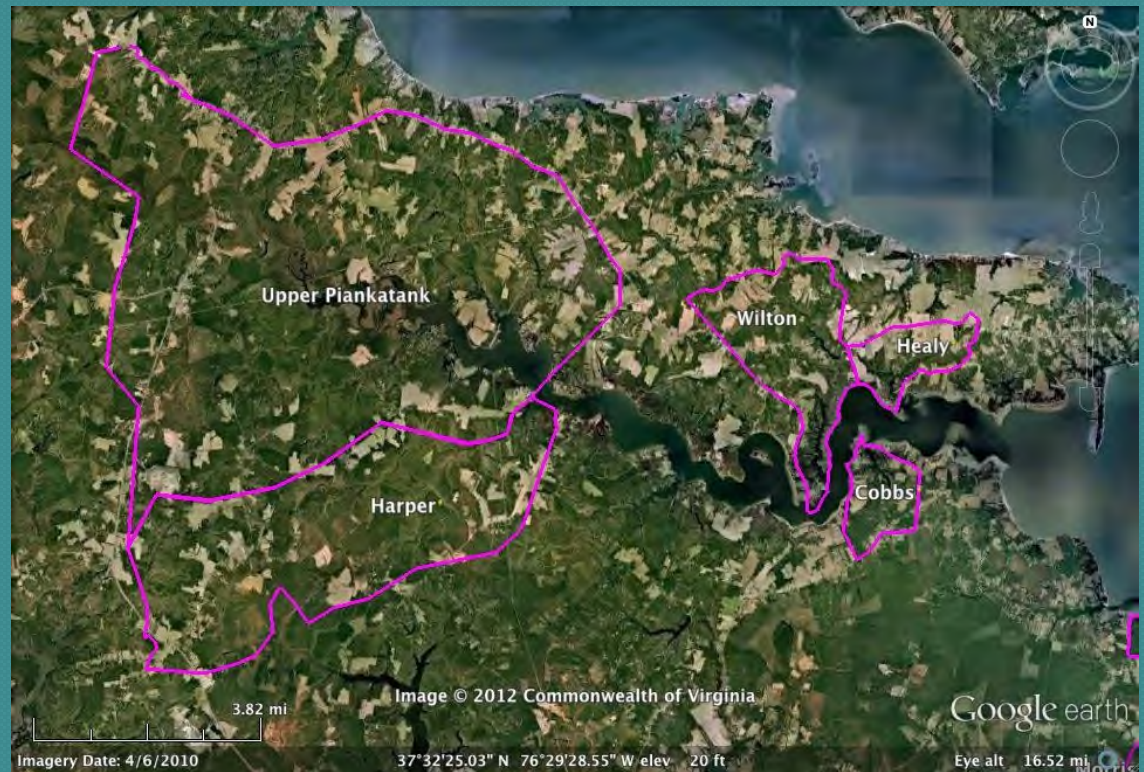
(added Barn, Lanes and Hudgins Creeks)

IP

Area Description

TMDLs Developed:

- Wilton Creek
- Healy Creek
- Cobbs Creek
- Upper Piankatank River
- Harper Creek



(added Frenchs, Ferry and Dancing Creeks)

Public Participation

- Public Meetings (2)
- Steering Committee (1)
- Working Groups (2)
- Agriculture/Business/Watermen (2)
- Residential/Recreational (2)
- Government (1)



While there is already good work under way in the area, this plan provides a road map to direct efforts that improve impaired streams

How Citizens Helped Develop This Implementation Plan

- Provided additional detail on watershed
- Reviewed/suggested technical and educational solutions
- Identified potential implementation impediments
- Provided technical research and local knowledge of bacteria sources
- Identified local funding sources/partnerships

Implementation Actions



Source Reassessment Methodology

For Each of the Sixteen Watersheds

Estimate the amount of pollutant entering the stream from each source type

- ◎ Bacteria loading from Human Sources

- Public Sewer and Straight pipes (county data, VDH shoreline surveys)
- Septic systems (local VDH health districts)
- Boat Waste (DEQ – NDZ research, VDH, marinas)



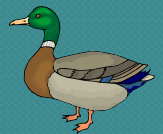
- ◎ Bacteria loading from Livestock

- Livestock inventory (Agricultural Census Data, Tidewater Soil & Water Conservation District, Cooperative Extension, observations)
- Livestock grazing and stream access
- Confined animal facilities



- ◎ Bacteria loading from Wildlife

- Wildlife inventories (VDGIF)
- Land use/population densities for deer, muskrat, raccoon, geese, duck



- ◎ Bacteria loading from Pets

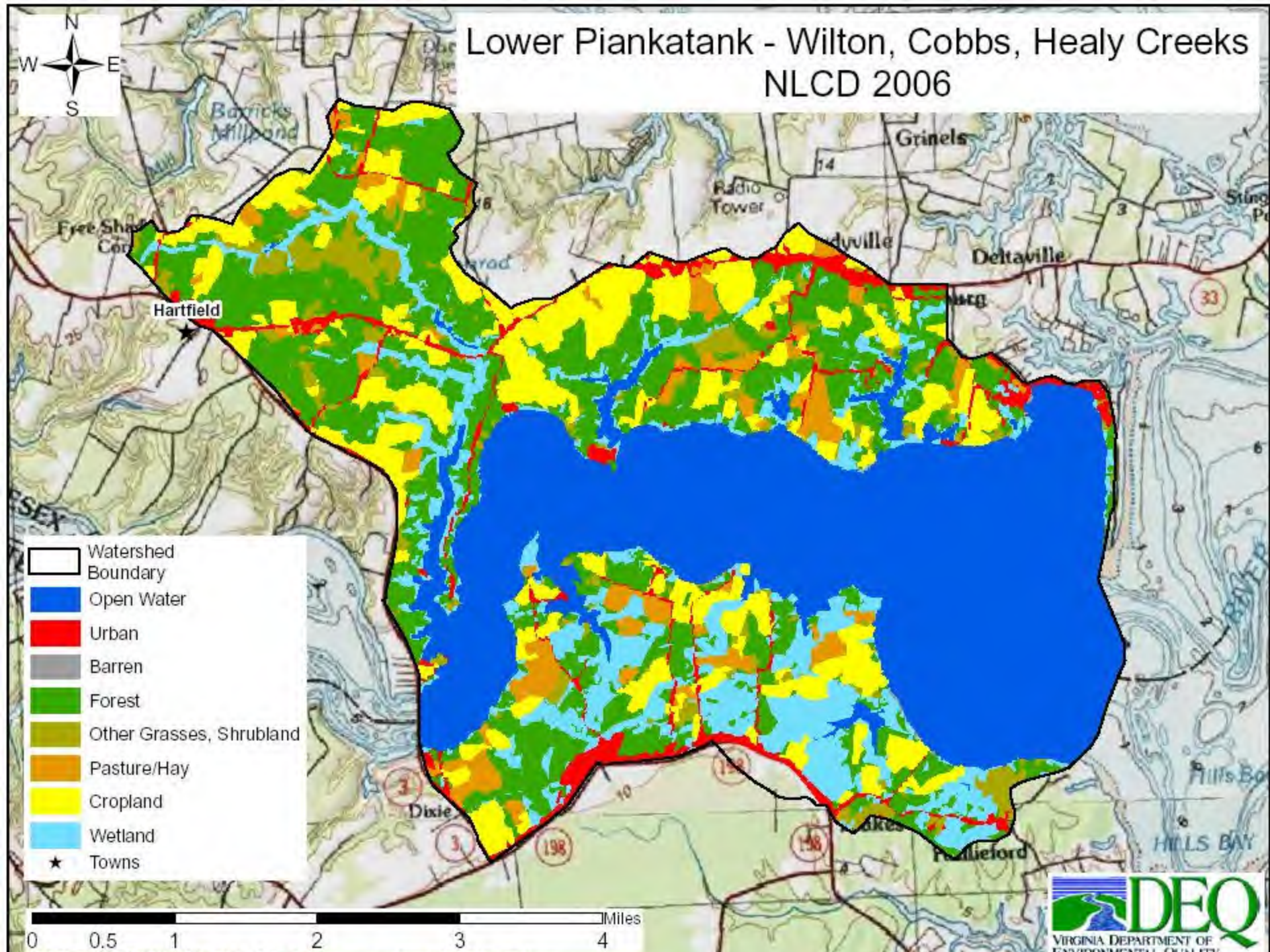
- Pet Inventories (Census Data, American Veterinary Medical Association, VDH Shoreline Surveys)
- County licensing data and online search for kennels
- Humane Society





Wilton Creek watershed boundary map, one of the 16 watershed boundary maps used in source reassessment

Lower Piankatank - Wilton, Cobbs, Healy Creeks NLCD 2006



Assessment of Needs

- Identification of best management practices (BMPs) to reduce bacteria
Agriculture, Residential
- Technical assistance needed for implementation of the plan (staffing needs for grant and project management)



Agricultural Best Management Practices Recommended

Practice	Gwynns Island and Milford Haven	Upper Piankatank	Lower Piankatank
Livestock Exclusion Systems (watering troughs, stream fencing, grazing management, etc)	41	41	17
Vegetated Buffers on Cropland (acres)	130	60	30
Animal Waste Control Facility (structure)			1

Residential Best Management Practices Recommended

Practice	Gwynns Island and Milford Haven	Upper Piankatank	Lower Piankatank
Septic Pump Out	1082/1082 * ~	1455/1455 * ~	455
Septic Connection to Public Sewer	3		
Septic Repair	35	51	23
Septic Replacement	33	46	8
Septic Replacement w/pump	5	7	2
Alternative Septic	26	28	8
Vegetated Buffer	160	90	60
Pet Waste Composters	108/25 *	235/50 *	102/25 *

* Phase 1(years 1-5) / Phase 2 (years 6-10)

~ Septic pump out cost-share programs will be prioritized by Bay Act pump-out non-compliance % in each watershed , areas outside Bay Act overlay districts, and those meeting income guidelines

Educational Programs Recommended

Program	Gwynns Island and Milford Haven	Upper Piankatank	Lower Piankatank
Recreational Boater	2/1	2/1	2/2
Residential (septic maintenance, pet & horse waste management)	3/3	2/2	2/2
Watermen	1/1	1/1	1/1
Aquaculture	3/3	2/2	2/2
Wildlife (education & management)	3/3	2/2	2/2

* Phase 1/Phase 2

Other Best Management Practices Recommended

Practice	Gwynns Island and Milford Haven	Upper Piankatank	Lower Piankatank
Public Pet Waste Collection Facility/Signs/Supplies	20/38 *	14/16 *	8/5 *
Confined Canine Waste Control System	7	3	2
Marina Boat Waste Discharge Facilities	3	1	5

* Phase 1/Phase 2

Promotable BMPs, Programs, Partnerships

- No-Discharge Zones
- Ditch Maintenance Task Force
- Oyster Reef Ball Construction
- Oyster Shell Collection for
Oyster Reef Restorations
- Oysters for Life (oystersforlife.com)
- Education programs to control
resident geese



Reefball.org

Costs of Implementation

Total Phase 1 (years 1-5) implementation cost estimates:

Gwynns Island/Milford Haven watersheds = \$ 2,084,600

Upper Piankatank watersheds = \$2,227,150

Lower Piankatank watersheds = \$836,300

Additional Phase 2 (years 6-10) implementation could be considered in order to fully implement TMDL load allocations

Gwynns Island/Milford Haven watersheds = \$397,150

Upper Piankatank watersheds=\$482,600

Lower Piankatank watersheds=\$177,750

Phased Implementation

- For all 16 watersheds - Calculated benefits indicate water quality standards will be met upon implementation of the identified BMPs
- Phase 1 - Years 1-5 and Phase 2 - Years 6-10
- If sampling reveals Phase 1 implementation has not met water quality standards, local citizens may elect to move forward with Phase 2 implementation to address the fecal coliform contribution from wildlife through a wildlife management plan and additional residential measures
- Alternatively, a use attainability analysis (UAA) may be initiated to reflect the presence of naturally high bacteria levels due to uncontrollable sources. The outcome of the UAA may lead to the determination that the designated use(s) of the waters may need to be changed to reflect the attainable use(s).



Implementation Benefits

Gwynns Island, Milford Haven Piankatank River Watersheds

- Water quality may be improved by reducing bacterial loads in these creeks.
- Property owners growing oysters in these creeks using dockside floats would no longer need to transport their floats to clean water to depurate the oysters prior to consumption.
- The residential programs may provide additional return on the investment in terms of economic benefits to homeowners.
- The replacement of failing on-site sewage disposal systems with new septic or alternative treatment systems will have a direct and substantial impact, improving property values and investing in the local economy.

Phase 1 Implementation Timeline

Year 1

- Residential education program focused septic maintenance, pet waste management, nuisance wildlife
- Septic BMPs to correct the deficiencies identified in the 2011 shoreline sanitary surveys
- Septic pump outs identified by enforcement programs
- Septic system repairs/replacements

Year 2

- Residential education program focused on pet waste management, horse grazing management, septic system maintenance
- Residential pet waste composters
- Vegetated Buffers on Residential Land
- Septic pump outs

Year 3

- Education programs for watermen, recreational boaters, aquaculture enthusiasts
- Small Acreage Grazing System and Livestock Exclusion
- Vegetated Buffers on cropland
- Septic pump outs

Phase 1 Implementation Timeline (continued)

Year 4

- Public pet waste collection facilities
- Confined Canine Control System (septic or dry stack composting)
- Vegetated Buffers on Residential Land
- Septic pump outs

Year 5

- Complete any BMPs or education programs that were not able to be completed as scheduled
- Septic tank pump outs

Before beginning Phase 2, the steering committee will evaluate program/partner success and target further efforts.

Agencies and localities will track BMP installations during both phases.



Water Quality Monitoring



Photo of Oyster Floats, courtesy of Nick Ferriter

- Established VDH-DSS bacteriological stations
- Citizen Water Quality Monitors: Monthly Coliscan Easygel for *E. coli* assist with identifying hotspots for bacteria contamination and progress with the installation of BMPs

Stakeholder Roles and Responsibilities

- Inform DCR about perceived pollutant sources
- Enlighten DCR about on-going/needed pollution control activities
- Review possible implementation strategies from a interest-based perspective
- Discuss alternative funding sources/partnerships
- Identify outreach methods for engaging peers in implementing pollution control measures
- Identify constraints to implementing pollution control measures

Stakeholders

Regional & Local

- Middle Peninsula Planning District Commission
- Tidewater Soil and Water Conservation District
- Mathews, Middlesex, Gloucester County
- Mathews Maritime Museum
- Residents and Business Owners of the 16 watersheds
- Tidewater Oyster Growers Association
- Chesapeake Bay Foundation
- The Nature Conservancy

Federal

- USDA -Natural Resources Conservation Service
- US Environmental Protection Agency

Stakeholders (continued)

State

- Virginia Department of Conservation and Recreation
- Virginia Department of Environmental Quality
- Virginia Department of Health – Division of Shellfish Sanitation and Environmental Health
- Virginia Department of Agricultural & Consumer Services
- Virginia Cooperative Extension and 4H
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Institute of Marine Science

Funding Sources

- Water Quality Improvement Fund
- VA Agricultural Best Management Cost Share
- VA Agricultural Best Management Tax Credits
- VA Small Business Environmental Assistance Loan
- Community Development Block Grant
- Virginia Environmental Endowment
- Conservation Reserve Program
- Wildlife Habitat Incentive Program
- Wetland Reserve Program
- National Fish and Wildlife Foundation
- SE Rural Community Assistance Project
- NRCS Aquaculture EQIP Program
- York River and Small Coastal Basin Roundtable
- VDOF Trees for Clean Water Program



Comments on the Draft IP may be submitted before
March 29, 2013 to:



May Louise Sligh, VA Dept. of Conservation and Recreation
Email: may.sligh@dcr.virginia.gov